Work Orde April-11-13 2:2		619		*996	319*						Page 1
Item ID: Revision ID: Item Name:	D2970-1 Wearplate			Accept	*N900)n 4 n	100)* s	etup Start	I W	S1* S2*
Start Date: Required Date: Reference:	4/16/13 : 4/16/13	Start Qty: 10.00 Req'd Qty: 10.00	*10 <i>*</i> *10 <i>*</i>		Cust Item Customer:						
Approvals:	Process Pl	an: ML5	Date: 13-04-	SPC (Y/N):		Pate:		R	tun Start Stop	1/1	R1* R2*
Sequence ID/ Work Center II Draw Nbr D2970	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	. Re	vision Nbr								-	 ·
D2970	В				,						
*100 *100* Waterjet FLOW CNC Water	jet	FLOW WATER JET Memo 1-Cut as per Dwg Rev: Prog Rev:	В	0.00				_13.	.O	. <u>-</u>	Ac 13.08.2
*110 *110*		2-Deburr if i QC2- Inspect parts off m	necessary	0.00				13	ò		Ac. 3,08.20

Quality Control

									DQA:	Date:	
NCR: Yes	/ No				WORK ORDER NON-C	ONFOR	MANCE / UP		QA Closed:	Date:	
Work Order:					DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part No.					Rework Scrap Use-as-is Work Order Update	1 1	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	1	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root				Descri	iption of work order update	Initial	Ac	tion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training											

	FAULT CATEGORY													
Landi	ng Gear	General	<u> </u>											
	Bending	Bend		Grain		Ovalized	Press	ure/Forced						
	Centre Not Concentric to O/S	BOM/Route		Hardware		Over/Under tolerance	Temp	erature/Cure						
	Cracks	Broken/Damaged		Inspection Incomplete		Part Incorrect	Weid							
	Crushed/Crimped	Burrs		Instructions Incomplete/Unclear		Part Lost/Missing	Wron	ig Stock Pulled						
	Cuffs	Γ	Maintenance		Part Moved									
	Heat Treat	Countersink		Mislabeled		Positioned Wrong								
	Inspection Strip in Tube	Cut Too Short		Misread		Power Loss/Surge	Othe	r						
	Ripples in Bend	Drill Holes		Offset										
	Torque Waves in Extrusion		Out of Calibration											
	Turning Sequence		Out of Sequence											
	Wave/Twist in Tube	Folio		Outside Dimensions		-		· ·						

Unapproved

Work Orde Opril-11-13 2:2		0619			*990	ร19*								Page 2	
tem ID: Revision ID: tem Name:	D2970-1 Wearplate	. 	-		Accept	*N.	900	<u></u> 040	100)* s	Setup Sta			51* 52*	
Start Date: Required Date: Reference:	4/16/13 4/16/13	Start Qty: 10.00 Req'd Qty: 10.00		*10* *10*			t Item I tomer:	D:							
Approvals:	Process Pl	an:			Tooling: SPC (Y/N):			ate:	<u> </u>	F	Run Sta St	on		₹1* ₹2*	
Sequence ID/ Work Center II 20 *120* QC Quality Control	D	Operation Description QC8- Inspect parts - seco	- nd check		Set Up/ Run Hours 0.00 27 9-89 0.00 \$\beta\$		ol ID	Tool #	Plan Code	Accept Qty	Reject Qty	Rejec Num		Insp. Stamp	
30 * 1 3 0 * Brake NC Brake NC		NC BRAKE Memo Deburr and f	orm on brak	e using DT817	0.00 0.00 8 and DT8261as per	Dwg D2970				13	 .			13/08	3(2
*1 4 0 *1 4 0*		QC5- Inspect part comple	eteness to st	ep on W/O	0.00 0.00 \ 3.	8.77			1	13	<u></u>		- • •		

Quality Control

										DQA:	Date:	
NCR: Y	es / No				WORK ORDER NON-	CONF	ORN	NANCE / UPDATE				
					······································					QA Closed:	Date:	
Work Orde	er: T				DISPOSITION			AGAI	INST DEI	PARTMENT	/PROCESS	
					Rework	7		Skid-tube Crossi	tube		Water Jet	Engineering
Part N	lo.				Scrap	┤ 【		Aachining Small	Fab	Pro	d. Eng. Coor.	Quality
					Use-as-is		Therm	oforming Finis	hing	Rec/Stor	re/Packaging	Other
NCR N	lo				Work Order Update]		Large Fab Compo	osite		Supplier	
Root		1	1	Descr	liption of work order update	Init	tial	Action	•	Sìgn &		
Cause	Date	Step	Qty		or Non-conformance	Chief		Description		Date	Verification	QC Inspector
Doc/Data						<u> </u>						
quip/Tooling	7											
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Process						ŀ					}	
Supplier												
Fraining								•			·	
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						FAULT	CATE	GORY				
Landir	ng Gear			_	General					1	-	7
.	Bending				Bend		rain		ļ	Ovalized		Pressure/Forced
ļ	Centre No	ot Conce	ntric to O	/S	BOM/Route		ardwa		ļ	Over/Under	F	Temperature/Cure
	Cracks	-			Broken/Damaged			on Incomplete	ļ	Part Incorre		Weld
1	Crushed/	Crimped			Burrs			ons Incomplete/Unclear	<u> </u>	Part Lost/M		Wrong Stock Pulled
	Cuffs			<u> </u>	Contamination	.—		nance	<u> </u>	Part Moved		
}	Heat Trea			-	Countersink	\vdash	lislabe 			Positioned V		٦
1	Inspection	-	Tube	\vdash	Cut Too Short		lisread		L	Power Loss/	'Surge	Other
}	Ripples in				Drill Holes	\vdash	ffset	- 146 				
}	Torque W			<u> </u>	Drawing			alibration				
	Turning S	equence		1	l Finish	- 1 10	ut of S	eguence				

Outside Dimensions

Wave/Twist in Tube

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde April-11-13 2:2		619			*(996	19	*					, 		Page 3
Item ID: Revision ID: Item Name: Start Date: Required Date: Reference:	D2970-1 Wearplate 4/16/13 4/16/13	Start Qty: 10.00 Req'd Qty: 10.00		*10* *10*	Accept		(ISONO Cust Item I Customer:		100)* 	Setup	Start Stop	*N!	S1* S2*
Approvals:	Process Pl	an:	Date:		Tooling:				nte:	- - .		Run	Start Stop	*NI *NI	R1* R2*
Sequence ID/ Work Center II	, D	Operation Description			Set Uj Run H			Tool ID	Tool#	Plan Code	Accept Qty	Qt	y	Reject Number	Insp. Stamp
150 HandFinish Hand Finishing				surface with a 1 126136	0.00 layer or rockgu —	iard as per dy DA 27 9-8	s 7				13	Ø	s .	<u>_Ø</u>	13-8-50
*160 *160* QC Quality Control		QC3- Inspect Part Finish Memo			0.00	Bf	<i>)</i> S				J		 .	· · · · ·	
170 *1.70* Packaging		Identify as per dwg & Sto	ck Locatio	<u>, Fι², ο</u> α	0.00						13x	, <u>.</u> .	¢	Hl	13/08/23

Packaging

				DQA:	Date:	
NCR:	Yes /	No	WORK ORDER NON-CONFORMANCE / UPDATE			

										QA Closed:	Date			
Work Ord	or.					DISPOSITION			AGAINST DE	PARTMENT	/PROCESS			
Part I	No.					Rework Scrap Use-as-is Work Order Update	Machining Small Fab Prod. Eng. Coor. Quality Thermoforming Finishing Rec/Store/Packaging Othe Large Fab Composite Supplier							
Root			l		Descri	ption of work order update	Initial	А	ction	Sign &				
Cause		Date	Step	Qty		or Non-conformance	Chief E	ng Des	cription	Date	Verification	QC Inspector		
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Landi	ne (Gear				General	AOEI CA							
		Bending				Bend	Grai	า		Ovalized		Pressure/Forced		
		Centre No	ot Concer	ntric to	o/s	BOM/Route	Hard	ware		Over/Under	tolerance	Temperature/Cure		
		Cracks				Broken/Damaged	Inspe	ction Incomplete		Part Incorre	ct	Weld		
	Crushed/Crimped Burrs						Instr	uctions Incomplete	e/Unclear	Part Lost/M	issing	Wrong Stock Pulled		
	Cuffs Contamination						Mais	ntenance		Part Moved				
	Heat Treat Countersink						Misla	beled		Positioned \	Wrong _	 1		
		Inspectio	n Strip in	Tube		Cut Too Short	Misr			Power Loss/	/Surge	Other		
		Ripples in				Drill Holes	Offse							
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	Turning Sequence Finish						\vdash	of Sequence						
1	Wave/Twist in Tube Folio Out of Sequence Out of Sequence Out of Sequence Out of Sequence Outside Dimensions													

Work Orde		99619	- 	*996	319*	: <u></u>	-	~ <u>~</u> . ~		·	Page 4
Item ID: Revision ID:	D2970-1 Wearplate			Accept	*N900	040	100)* s	etup Sta	1.71	S1* S2*
Start Date: Required Date: Reference:	4/16/13 4/16/13	Start Qty: 10.00 Req'd Qty: 10.00	*10* *10*		Cust Item I Customer:	D:					
Approvals:	Process QC:		Date:	Tooling: SPC (Y/N):		ate:	- · · · ·	R	tun Sta Sto	1/1	R1* R2*
Sequence ID/ Work Center II)	Operation Description QC21- Final Inspection -	Work Order Release	Set Up/ Run Hours	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 QC Quality Control		Мето		0.00				M	-5	13-08	76 1.

el 12-04.95

											DQA:	Date:	
NCR:	res /	No				WORK ORDER NON-C	O	VFORN	MANCE / UPDA			· · · · · · · · · · · · · · · · · · ·	
											QA Closed:	Date:	
Work Orde						DISPOSITION	Ì			AGAINST DE	PARTMENT	PROCESS	
WOIK OIG	≠ı. <u> —</u>					Rework	1 		Skid-tube	Crosstube		Water Jet	Engineering
Part N	Vo.					Scrap	1 1		Machining	Small Fab	Proc	d. Eng. Coor.	Quality
						Use-as-is	1 1		oforming	Finishing		e/Packaging	Other
NCR I	No.					Work Order Update	1		Large Fab	Composite		Supplier	
Root					1	ption of work order update		nitial	Actio		Sign &	' i	
Cause	[ate	Step	Qty		or Non-conformance	Ch	ief Eng	Descrip	tion	Date	Verification	QC Inspector
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			<u> </u>				AUL	T CATE	JURY				
Landi	ng Gea					General Bend		Grain			Ovalized		Pressure/Forced
		nding	. C		0/5	BOM/Route	\vdash	Hardwa	ro.	<u> </u>	Over/Under	tolerance	Temperature/Cure
Centre Not Concentric to O/S Cracks						Broken/Damaged		l	on Incomplete	 	Part Incorre		Weld
	—		Crimped			Burrs	\vdash	1	on incomplete/Uni	clear	Part Lost/Mi		Wrong Stock Pulled
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	-	πs at Trea				Countersink	-	Mislabe		\vdash	Positioned V	Vrong	
,	Щпе	atirea	ı		<u> </u>	1COUNTER SILIK	<u> </u>	المالعات	icu	<u> </u>	Power Loss/		Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drill Holes

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Picklist Print

April-11-13 2:23:24 PM

Work Order ID:

99619

Parent Item:

D2970-1

Parent Item Name:

Wearplate

Start Date: 4/16/13

Required Date: 4/16/13

Start Qty: 10.00

Required Qty: 10.00

Comments:

IPP: B01.06.07Added Material and Tool number SM/EC

IPP Rev:C Now on Waterjet 07-06-27 JLM

IPP REV:D 13.04.08 AS PER

DWG REV.B DD VERF;JLM

		· - · · - · · - · · · · · · · · · · · ·						_					
Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304S20GA 304/316 .040 Sheet		Purchased	No	• ·		100	sf	367.6500	0.365	3.84210 5			13,28.20
DAS				Location MAT020		<u>Loc Oty</u> 367.65		oc Code					
27 989 バスルン()				12	24029 24956	117.15 250.5			12	4956-	→ 5	G. 0	

Page 1

											DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-O	100	NFOR	MANCE / UPD	ATE			
											QA Closed:	Date:	
Mork Ord	0 F.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Work Ord	er					Rework	1		Skid-tube	Crosstube	ן	Water Jet	Engineering
Part f	۷io					Scrap	1		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
101(•••					Use-as-is	1		noforming	Finishing		re/Packaging	Other
NCR I	No.					Work Order Update			Large Fab	Composite]	Supplier	
			T.								T 1. 2		
Root	ļ					ption of work order update	1	Initial	Actio		Sign &	.,	
Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Descri	ption	Date	Verification	QC Inspector
Doc/Data	Ш		i										
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Material	Ш												
Setup	Щ		1										
Other													F
Process	Ц		[1		
Supplier	Ц												
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Landi						General		۱		_	٦. ، ،		7
	-	Bending	_		_	Bend	<u> </u>	Grain		 	Ovalized	, , -	Pressure/Forced
		Centre No	ot Concei	ntric to	^{D/S} .	BOM/Route	-	Hardwa		-	Over/Under	⊢	Temperature/Cure
Cracks						Broken/Damaged	\vdash	4	ion Incomplete	<u> </u>	Part incorre	-	Weld
Crushed/Crimped					<u> </u>	Burrs	-	-	ions Incomplete/U	nclear	Part Lost/M	issing	Wrong Stock Pulled
	-	Cuffs			<u> </u>	Contamination	<u></u>	Mainte		<u> </u>	Part Moved		
	Ιİ	Heat Trea	at		1	Countersink		Mislabe	eled		Positioned \	Nrong	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order:	99619
Description: Wearplate	Part Number:	D2970-1
Inspection Dwg: D2970 Rev: # B		Page 1 of 1

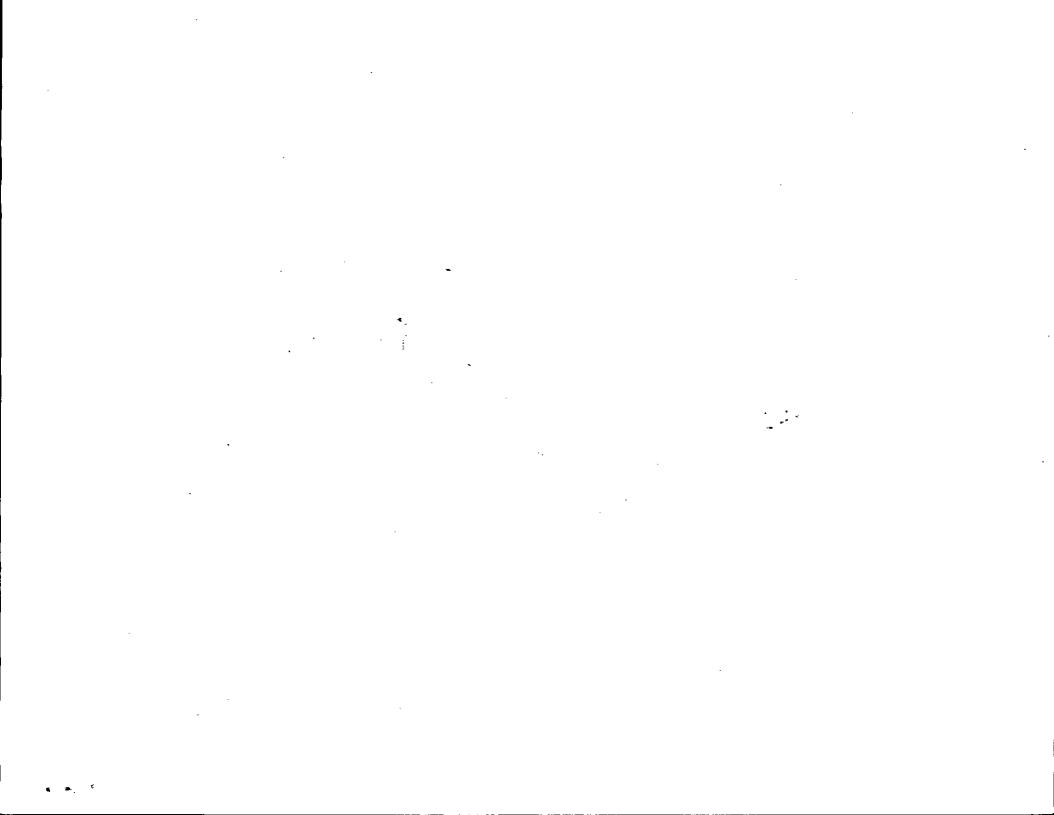
FIRST ARTICLE INSPECTION CHECKLIST

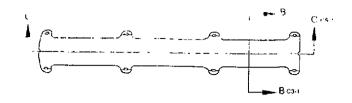
X First Article	Prototype
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Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.220 × 0.300	+/-0.010	,230 × .306			V	JKM-01
2.063	+/-0.010	2.063	_		V _{cc}	
2.813	+/-0.010	2.813	-		V	
5.800	+/-0.010	5.800	-		V	
0.375	+/-0.010	.375	1		V	
- 55.000-	±/-0.010				-7-	
0.040	+/-0.010	. 035	-	, , , , , , , ,	V	·
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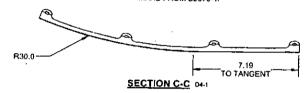
Measured by:	Ae	Audited by:	9-89	Prototype Approval:	N/A
Date:	13.08.20	Date:	13.8-21	Date:	N/A

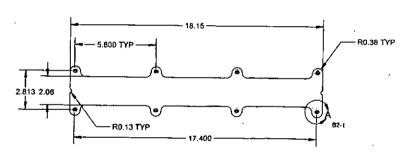
Rev Date	Change	evised,by	Approved
A 08.11.27	New Issue	J/EC	\mathcal{Y}
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D2970-1 BEND DETAIL MAKE FROM D2970-1F





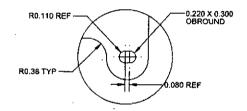
D2970-1F FLAT PATTERN

NOTES:
1) MATERIAL: AISI 304/316 STAINLESS STEEL SHEET PER AMS 5513 OR 5524
OR ASTIM A240 OR ASME SASCE
20 GAUGE (0.040 THICK), REF. DART SPEC. M304S20GA
2) FINISH: NONE
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
6) IDENTIFICATION: IDENTIFY WITH P/N D2970-1 AND BIN AS PER DART QSI 044 6.1 (FINE POINT PAINT MARKER)
7) WEIGHT: 0.47 lbs
8) COAT ENTIRE TOP (CONCAVE) SURFACE WITH A LAYER OF PLUS ONE ROCKGUARD 4714, 0.020-0.040 THICK

(8k al

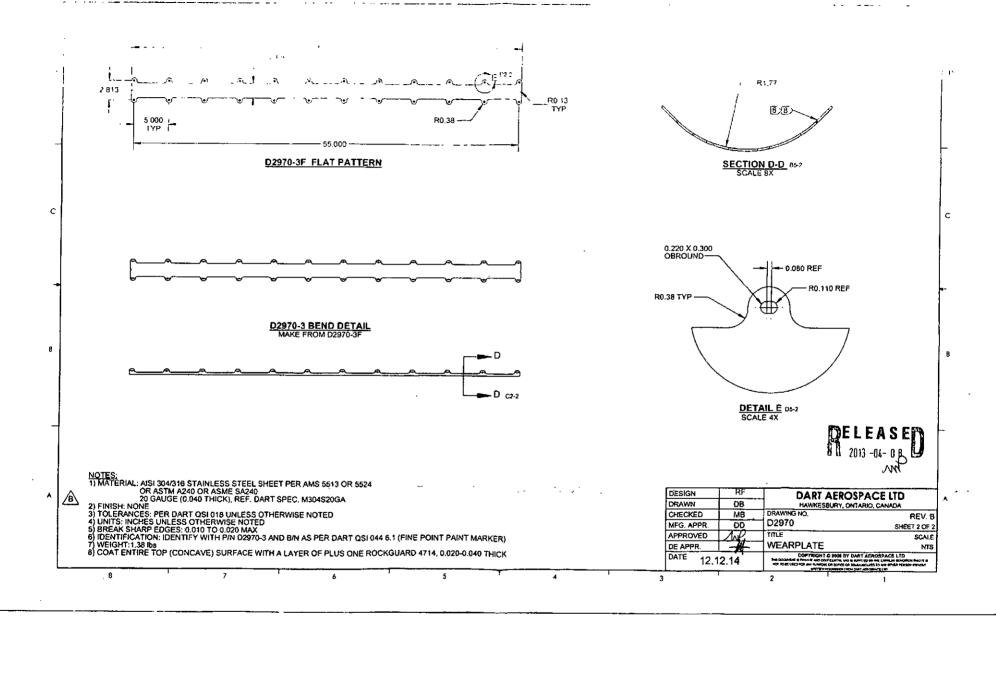
SECTION B-B DS-1 SCALE:2X





DE APPR. DATE 12.12.14			WEARPLATE COPYRIGHT © 2000 BY DART AER THE SOCIALITY OF PRINCY AND STORESON HOURS BAPFLED.	NTS		
APPROVED AND		MA	TITLE		SCALE	
MFG. APPR. DD		DD	D2970	SHEET 1 OF		
CHECK	ŒD	МВ	DRAWING NO.	REV. 8		
DRAWN DB		DB	KENT, WA	_		
DESIG	DESIGN RF DART AEROSPACE			USA INC		
REV.	<u> </u>		BY	DATE		
٨	NEW IS	SUE		æ	00 03.10	
В		T TO CURREN 10-1025, REMO SUARD COATIN	DB	12,12.14		

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